

Heights of rivers—Continued.

Stations.	Danger-point on range.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
<i>Sacramento River.</i>	<i>Feet.</i>	<i>Feet.</i>		<i>Feet.</i>		<i>Feet.</i>
Red Bluff, Cal.....		11.9	27	3.5	23, 24	8.4
Sacramento, Cal.....		26.0	1	19.5	26	6.5

* River frozen. † For 19 days. ‡ For 27 days. § For 22 days. ¶ For 17 days.

CLOSING AND OPENING OF NAVIGATION AT ALBANY, N. Y., 1832 TO 1892.

Chart IX, published with this issue of the REVIEW, presents diagrams, prepared by Mr. A. F. Sims, Observer, Weather Bureau, Albany, N. Y., showing the dates of closing and opening of navigation in the Hudson River at Albany, N. Y., the number of days in each winter, and the average number of days by decades of years, and for the period 1832 to 1892, navigation was closed by ice.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Auroras were reported as follows: 1st, Des Moines, Iowa. 5th, Minnesota City, Minn.; Newark, N. J. 6th, Cornish, Me.; Manchester, N. H.; Concord, Mass.; Sandy Lake Dam, Minn. 8th, Surface Creek, Colo.; Indian Stream, Me. 9th, Collegeville, Fergus Falls, and Maple Plain, Minn.; Gallatin, Grand Forks, Lakota, and Wild Rice, N. Dak.; Webster, S. Dak.; Crandon, Wis. 10th, Barron, Wis. 12th, Grand Haven, Mich.; Gallatin, N. Dak.; Barron, Wis. 13th, Stevenson, Conn. 14th, Grundy Center, Iowa; Cincinnati, Ohio. 17th, Chelsea and Woodstock, Vt. 18th, Houlton, Me.; Marquette, Mich.; Alexandria, Bingham Lake, and Fergus Falls, Minn.; Butternut, Medford, Shell Lake, and Valley Junction, Wis.

19th, Belfast, East Machias, and Houlton, Me.; Alpena and Marquette, Mich.; Bingham Lake, Minn.; Havre, Mont.; Napoleon, N. Dak.; Frankfort, Gary, and Webster, S. Dak.; Barron, Wis. 20th, Alexandria, Minn.; Bismarck and Napoleon, N. Dak. 21st, Alta, Iowa; Cornish, Farmington, Gardiner, Houlton, Indian Stream, and Presque Isle, Me.; Concord and Leominster, Mass.; Bingham Lake, Clear Lake, Fergus Falls, and Saint Olaf, Minn.; Glendive and Havre, Mont.; Bethlehem and Hanover, N. H.; Malone, N. Y.; Ashley,

Bismarck, Fort Buford, Grand Rapids, and Wild Rice, N. Dak.; Castlewood, S. Dak.; Chelsea, Northfield, and Hyde Park, Vt.; Grantsburg, Wis. 22d, Grand Rapids, N. Dak.; Castlewood, S. Dak. 24th, Placerville, Cal.; Cresco, Iowa; Savoy, Mass. 28th, Hastain, Mo. 31st, Mitchell, S. Dak.

THUNDERSTORMS.

Description of the more severe thunderstorms reported for the month is given under "Local storms."

Thunderstorms were reported as follows: East of the Rocky Mountains they were reported in the greatest number of states, 9, on the 28th; in 6 on the 19th; in 5 on the 11th; in 4 on the 12th, 18th, and 29th; in 3 on the 1st, 14th, 15th, and 27th; in 2 on the 9th, 17th, and 30th; and in 1 on the 7th, 16th, 24th, 26th, and 31st. No thunderstorms were reported on the 2d to 6th, 8th, 10th, 13th, and 20th to 23d.

East of the Rocky Mountains thunderstorms were reported on the greatest number of dates, 8, in Florida; on 7 in Mississippi; on 6 in Alabama and Georgia; on 5 in Louisiana; on 3 in Illinois, Indiana, Missouri, and Ohio; on 2 in Iowa, Michigan, and South Carolina; and on 1 in Connecticut, Kansas, North Carolina, South Dakota, Texas, and Wisconsin.

West of the Rocky Mountains thunderstorms were reported in California on the 27th, and in Utah on the 27th and 30th.

STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for January, 1893, of the directors of the various state weather services:

ALABAMA.

Temperature.—Maximum, 79, at Geneva, 2d; minimum, —8, at Newburg, 20th; greatest monthly range, 82, at Florence; least monthly range, 47, at Mobile, Tuscumbia, and Daphne.

Precipitation.—Greatest monthly, 6.98, at Maysville; least monthly, 0.37, at Tuscumbia.

Wind.—Prevailing direction, northwest.—P. H. Mell, Observer, Weather Bureau, Auburn, director.

ARIZONA.

Temperature.—Maximum, 80, at Fort Mohave, 15th, and at Rancho del Pueblo, 8d to 7th; minimum, 4, at Flagstaff, 18th and 20th; greatest monthly range, 59, at San Carlos; least monthly range, 35, at Oracle.

Precipitation.—Greatest monthly, 1.92, at Flagstaff; least monthly, 0.00, at Gila Bend, Palomas, Rancho del Pueblo, and Teviston.

Wind.—Prevailing direction, southwest.—W. Burrows, Observer, Weather Bureau, Tucson, director.

ARKANSAS.

Temperature.—The mean was 2.0 below the normal; maximum, 80, at Camden, 27th; minimum, —13, at Harrison, 19th; greatest monthly range, 83, at Harrison; least monthly range, 47, at Greenville, Miss.

Precipitation.—The average was 3.52 below the normal; greatest monthly, 4.68, at Greenville, Miss.; least monthly, 0.15, at Warm Springs.

Wind.—Prevailing direction, north.—M. F. Locke, Commissioner of Agriculture, Little Rock, director; F. H. Clarke, Local Forecast Official, Weather Bureau, assistant.

CALIFORNIA.

Temperature.—Maximum, 89, at Rialto, 6th; minimum, 9, at Susanville,

31st; greatest monthly range, 59, at San Jacinto; least monthly range, 16, at Williams.

Precipitation.—Greatest monthly, 11.70, at Glendora; least monthly, trace, at Needles.

Wind.—Prevailing direction, south.—J. A. Barwick, Observer, Weather Bureau, Sacramento, director.

COLORADO.

Temperature.—The mean was above the normal; maximum, 81, at Orchard, 5th; minimum, —16, at Breckenridge, 28th, and at Orchard, 31st; greatest monthly range, 97, at Orchard; least monthly range, 86, at Climax.

Precipitation.—Greatest monthly, 4.60, at Climax; least monthly, 0.00, at Orchard and Monte Vista.—J. J. Gilligan, Observer, Weather Bureau, Denver, director.

FLORIDA.

Temperature.—Maximum, 80, at Key West, 28th, and at Archer, 31st; minimum, 20, at Archer, 14th; greatest monthly range, 60, at Archer; least monthly range, 26, at Key West.

Precipitation.—Greatest monthly, 5.41, at Hypoluxo; least monthly, 0.48, at Saint Augustine.

Wind.—Prevailing direction, northwest.—E. R. Demain, Observer, Weather Bureau, Jacksonville, director.

GEORGIA.

The month was noted for the longest continued cold weather and the heaviest snowfall known in years.

Temperature.—Maximum, 78, at Darien, 2d; minimum, —1, at Adairsville, 21st; greatest monthly range, 69, at Adairsville; least monthly range, 47, at Columbus.